

Amendments to the Claims

1. (Amended) A metal substrate having a coating thereon, the coating comprising:  
  
an ormosil composite including an organic-inorganic hybrid polymeric matrix and  
a plurality of inorganic particles of a size of at least one (1) micron entrapped therein.
2. (Original) The substrate of claim 1 wherein substantially all of said plurality of  
inorganic particles each being not greater than 75 microns in its maximum dimension.
3. (Original) The substrate of claim 1 wherein substantially all of said plurality of  
inorganic particles each being not greater than 5 microns in its maximum dimension.
4. (Original) The substrate of claim 1 wherein the concentration of said plurality of  
inorganic particles is between 1% and 90% of the total weight of said ormosil composite.
5. (Original) The substrate of claim 4 wherein the concentration of said plurality of  
inorganic particles is between 5% and 30% of the total weight of said ormosil composite.

6. (Original) The substrate of claim 1 wherein said ormosil composite coating is of a thickness of between approximately 10 and 26 microns.

7. (Original) The substrate of claim 1 wherein said plurality of inorganic particles are selected from a group consisting of oxides, nitrides, carbides, and carbonitrides.

8. (Original) The substrate of claim 1 wherein said ormosil composite is formed through the hydrolysis and condensation of organically modified silane with an alkoxide precursor.

9. (Original) The substrate of claim 8 wherein said alkoxide precursor is a non-transition metal alkoxide.

10. (Previously Presented) A process for improving the abrasion and corrosion resistance of a metal prone to abrasion and corrosion, comprising:

applying to the metal a coating of an ormosil organic-inorganic hybrid polymeric matrix;

wherein a plurality of inorganic particles of a size of at least one micron in maximum dimension are entrapped in said ormosil matrix.

11. (Original) The process of claim 10 further including applying said ormosil composite coating in a sol-gel process.

12. (Amended) An abrasion and corrosion resistant coating for application on a metal, said coating comprising an ormosil composite, said ormosil composite including an organic-inorganic hybrid polymeric matrix and a plurality of inorganic particles of a size of at least one (1) micron entrapped herein and said coating imparting corrosion resistance to the metal.

13. (Previously Presented) The coating of claim 12 wherein substantially all of said plurality of inorganic particles each being not greater than 75 microns in its maximum dimension.

14. (Previously Presented) The coating of claim 12 wherein substantially all of said plurality of inorganic particles each being not greater than 5 microns in its maximum dimension.

15. (Amended) The coating of claim [1] 12 wherein the concentration of said plurality of inorganic particles is between 1% and 90% of the total weight of said ormosil composite.

16. (Previously Presented) The coating of claim 15 wherein the concentration of said plurality of inorganic particles is between 5% and 30% of the total weight of said ormosil composite.

17. (Previously Presented) The coating of claim 12 wherein said ormosil composite coating is of a thickness of between approximately 10 and 26 microns.

18. (Previously Presented) The coating of claim 12 wherein said plurality of inorganic particles are selected from a group consisting of oxides, nitrides, carbides, and carbonitrides.

19. (Previously Presented) The coating of claim 12 wherein said ormosil composite is formed through the hydrolysis and condensation of organically modified silane with an alkoxide precursor.

20. (Previously Presented) The coating of claim 19 wherein said alkoxide precursor is a non-transition metal alkoxide.

21. (New) A substrate having a coating thereon, the coating comprising:  
  
an ormosil composite including an organic-inorganic hybrid polymeric matrix and a plurality of inorganic particles of a size of at least one (1) micron entrapped therein; and  
  
wherein substantially all of said plurality of inorganic particles each being not greater than 5 microns in its maximum dimension.

22. (New) A substrate having a coating thereon, the coating comprising:  
  
an ormosil composite including an organic-inorganic hybrid polymeric matrix and a plurality of inorganic particles of a size of at least one (1) micron entrapped therein;

wherein a concentration of said plurality of inorganic particles is between 5% and 30% of a total weight of said ormosil composite.

23. (New) A substrate having a coating thereon, the coating comprising:

an ormosil composite including an organic-inorganic hybrid polymeric matrix and a plurality of inorganic particles of a size of at least one (1) micron entrapped therein;

wherein said ormosil composite coating is of a thickness of between approximately 10 and 26 microns.

24. (New) An abrasion and corrosion resistant coating comprising:

an ormosil composite, said ormosil composite including an organic-inorganic hybrid polymeric matrix and a plurality of inorganic particles of a size of at least one (1) micron entrapped therein;

wherein substantially all of said plurality of inorganic particles each being not greater than 5 microns in its maximum dimension.

25. (New) An abrasion and corrosion resistant coating comprising:

an ormosil composite, said ormosil composite including an organic-inorganic hybrid polymeric matrix and a plurality of inorganic particles of a size of at least one (1) micron entrapped therein;

wherein said ormosil composite coating is of a thickness of between approximately 10 and 26 microns.